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Wisconsin Department of Commerce

Evaluation # 200816-R

Safety & Buildings Division
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Wisconsin
Building Products Evaluation

Material	Spaceloft® Thermal Insulation Product
Manufacturer	Aspen Aerogels, Inc. 30 Forbes Road Northborough, MA 01532

SCOPE OF EVALUATION

GENERAL: This report evaluates the use of Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap® thermal insulation, manufactured by Aspen Aerogels, Inc., for use in wood frame, new and existing construction.

Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap thermal insulation was evaluated in accordance with the fire safety requirements and thermal performance, for the codes listed below.

The **Comm** requirements below in accordance with the current **Wisconsin Uniform Dwelling Code for 1- and 2-family dwellings:**

- **Foam Plastic Material:** Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap® thermal insulation was evaluated in accordance with the fire safety requirements of **s. Comm 21.11**.
- **Thermal Performance:** Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap® thermal insulation was evaluated in accordance with the thermal performance requirements of **Subchapter VI, ss. Comm 22.20**, **22.21**, **22.23**, **22.25**, **22.27**, **22.28**, and **22.31**.

The **IBC** requirements below in accordance with the current **Wisconsin Amended ICC Code:**

- **Foam Plastic:** Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap® thermal insulation was evaluated in accordance with the fire safety requirements of **ss. IBC 2603.1**, **2603.2**, **2603.3** and **s. IBC 2603.4**.
- **Thermal Performance:** Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap® thermal insulation was evaluated in accordance with the thermal performance requirements of **s. Comm 63.0600**.

DESCRIPTION AND USE

Spaceloft® 3251, 6251, 9251 and Spaceloft Insul-Cap® is a flexible, nanoporous aerogel blanket™ insulation product used in residential and commercial structures. Spaceloft insulation combines a silica aerogel with reinforcing fibers.

The Spaceloft® product is a dark gray/black fabric material with no characteristic odor. Under certain conditions, product may have faint ammonia-like odor.

HANDLING AND STORAGE

The Spaceloft® product is not soluble. Do not flush into surface water or sanitary sewer system. Contain and collect release material for disposal. A HEPA-filter equipped vacuum is the preferred method of cleaning up dust.

Minimize dust generation. Ensure adequate ventilation. Use personal protective equipment as necessary. Aerogel blankets will generate dust when handled. Workplace exposure to all dust should be controlled with standard industrial hygiene practices. Local exhaust ventilation should be the primary dust control method. Dust released during the handling of aerogel blankets should be cleaned up promptly.

Aerogel blankets shall be kept in their packaging until they are ready to be used. Unpack the material in the work area.

Spaceloft Insul-Cap® is a ¾-inch thick strip of flexible aerogel blanket, used to control thermal bridging. The Spaceloft Insul-Cap® is applied between framing and the interior and/or exterior sheathing on the face of the stud. It is supplied in standard lengths of 8 feet or custom length with a peel-and-stick backing.

Are there any specific instructions on the use of the product in those wall areas which are greater than 8 ft in height (ie. a basement with 9 ft walls, or exposed upstairs wall greater than 8 ft as associated with a vaulted ceiling. Is the product required to be overlapped? If so, by how much? Is there special taping, or other actions required when installing in wall heights of greater than 8 ft? This information is needed for field inspection and verification.

TESTS AND RESULTS

The tests and results listed below cover the **Wisconsin Uniform Dwelling Code (UDC), (for 1- and 2-family dwellings)** and the current **Wisconsin Amended 2006 IBC Code** requirements:

Surfacing burning characteristics testing in accordance with ASTM E84-2007 was conducted on Spaceloft® 9251flexible aerogel blanket material, 0.36-inch-thick, 9.4 lb/ft^{3}density. The results of the test indicated a Flame Spread Index of 20 and a Smoke Development Index of 70. Testing was conducted at NGC Testing Services, Report No. FH-1803-1.

Surfacing burning characteristics testing in accordance with ASTM E84-2007 was conducted on Spaceloft® 9251flexible aerogel blanket material with a 2 mil PVC film, 0.36-inch-thick, 9.4 lb/ft^{3}density. The results of the test indicated a Flame Spread Index of 25 and a Smoke Development Index of 170. Testing was conducted at NGC Testing Services, Report No. FH-1803-2.

Thermal conductivity testing in accordance with ASTM C177 and ASTM C518 was conducted on Spaceloft® 9251flexible aerogel blanket material, 9.4 lb/ft^3 density. The results of the tests indicated an R-value of 11.3 per inch of thickness.

LIMITATIONS OF APPROVAL

The limitations below are in accordance with the current **Wisconsin Uniform Dwelling Code (UDC), (for 1 & 2 family dwellings)** and the current **Wisconsin Amended ICC Code:**

General: Spaceloft® insulation product **is approved** for installation in existing residential and commercial and frame (wood or steel) construction.

The **Comm** limitation requirements below are in accordance with the current **Wisconsin Uniform Dwelling Code (UDC), for 1- & 2-family dwellings:**

- **Foam Plastic:** Spaceloft® insulation product shall be separated from the building interior with a thermal barrier as required by **s. Comm 21.11 (1)**.

- **Thermal Performance:** Spaceloft® insulation product shall meet the thermal performance requirements of **Subchapter VI, ss. Comm 22.20**, **22.21**, **22.23**, **22.25**, **22.27**, **22.28**, and **22.31**. Calculations shall be signed, sealed and submitted in accordance with **s. Comm 22.31** as appropriate.

The **IBC** limitations below are in accordance with the current **Wisconsin Amended IBC 2006 Code:**

- **Foam Plastic:** Spaceloft® insulation product shall be separated from the building interior with a thermal barrier as required by **s. IBC 2603.4**.
- **Thermal Performance:** Spaceloft® insulation product shall meet the thermal performance requirements of **s. Comm 63.0102(2)(b)**, and **(c)**. Calculations shall be signed, sealed and submitted in accordance with **s. Comm 63.0102** as appropriate

Note: This product may not be used in a plenum space per the flame spread index and smoke development index test results listed above based on 2006 IMC 602.2.1., unless the requirements of IMC 602.2.1.5 are addressed, and any other foam plastic requirements per IBC Chapter 26 are met.

Spaceloft® insulation product is only allowed in accordance with **s. IBC 2603.3.**

This approval will be valid through December 31, 2013, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:
Approval Date: By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau

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